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07/16/99



**APPENDIX**  
**FOR**  
**UNITED STATES LETTERS PATENT**

**TITLE:** DIRECT RESPONSE E-MAIL

**APPLICANT:** ANTHONY D. ESTES

"EXPRESS MAIL" Mailing Label Number EL224672908US

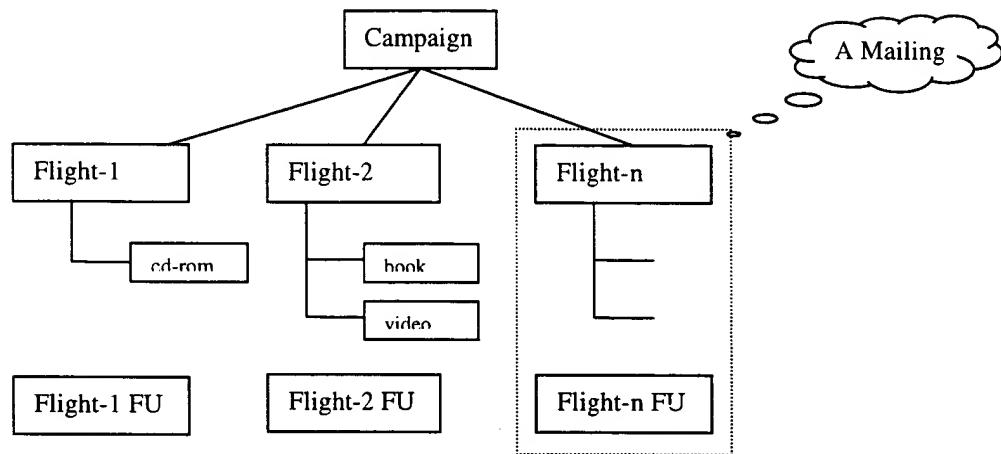
Date of Deposit 7/16/99  
I hereby certify under 37 CFR 1.10 that this correspondence is being  
deposited with the United States Postal Service as "Express Mail  
Post Office To Addressee" with sufficient postage on the date  
indicated above and is addressed to the Assistant Commissioner for  
Patents, Washington, D.C. 20231.

Joanne D. Boyle

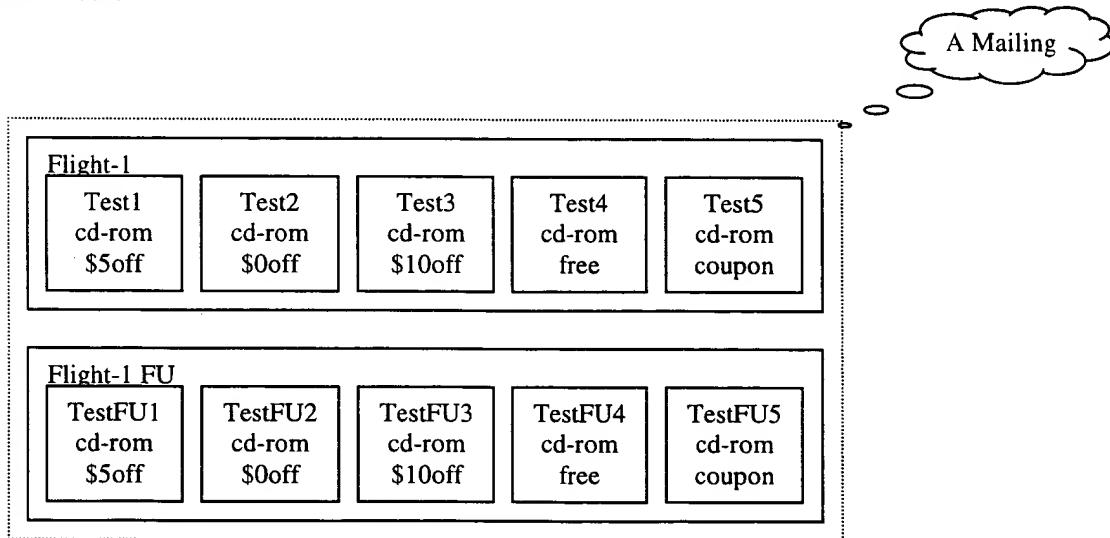
# e-mail Protocols, Structures, Definitions & Cycles

## MAIL CAMPAIGN

A mail campaign is defined in terms of **Flights**.



A flight contains one or more items that are being promoted but is not restricted to the manner in which the promotion is performed. A flight could be setup to promote a CD-ROM but has variances in the promotion of the item to the targeted mailing. These variances in a flight are called **Tests**.



In order to reference the entities above, each are assigned Ids as follows:

APPENDIX A

#### A Campaign

- Has a Campaign ID , **CID**
- Has 1 to n flights and flight follow-ups

#### A Mailing

- Has a Mailing ID, **MID**
- Has a Client Code (SOAC). The mailing is performed on behalf of the client.
- Has a Flight ID, **FID** and a Flight Follow-up ID, **FID**

#### A Flight

- Has a flight ID, **FID**
- Shares a **SOAC** with its Flight Follow-up
- Contains one or more Test Ids, **TID**
- Has 1 to m items for sale

#### An Item

- Has an Item ID **IID**
- Has an Item code (determined by the client)

To summarize, the following ID acronyms are used:

- <b>MID</b>	- Member ID (ID of the person receiving the e-mail)
- <b>CID</b>	- Campaign ID
- <b>LID</b>	- maiLing ID
- <b>FID</b>	- Flight ID
- <b>TID</b>	- Test ID
- <b>IID</b>	- Item ID
- <b>SID</b>	- Style ID (ID of the style of the e-mail message)

## **MAIL PROTOCOLS**

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### **SMTP**

The *Simple Mail Transfer Protocol* (SMTP) is described in RFC 821 and is the way that two sites on the Internet exchange mail messages.

The commands are:

- HELO      *domain*
- MAIL      FROM: *username*
- RCPT      TO: *username*
- DATA
- QUIT

Each command is terminated with a CR-LF pair. Replies start with a three-digit response code and continue with text designed to be read by users.

### **POP3**

POP3 is the Post Office Protocol. If the site is always on the Internet, then mail would be sent with an SMTP-sender and received with an SMTP-receiver. However, it may cases it is not possible to maintain a permanent internet connection and in such cases, the Post Office Protocol is used to receive the inbound mail. POP3 allows mail to be stored on machine that is always on the Internet and a receiving host connects to it, asks for any mail and disconnects.

The commands are:

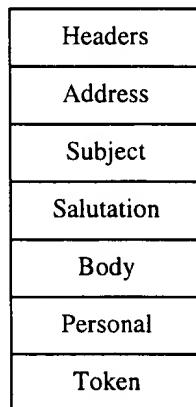
- USER      *username*
- PASS      *password*
- STAT
- LIST      [*message number*]
- RETR      *message number*
- DEL      *message number*
- LAST
- QUIT

## **THE ANATOMY OF AN OUTBOUND E-MAIL MESSAGE**

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An outbound email message has a predefined structure. The message is created by combining together a text block with an email address.

The structure of an outbound mail message consists of a Property, Address, Subject, Header, Body, Personal and Token.



*Structure of an outbound e-mail message*

### **a) Headers**

The first few lines of an Outbound Mail message are called the Headers and have a defined format. This information is not normally displayed to the User by a Mail Client application and can only be viewed if the Client permits e.g., in Microsoft Exchange this information can be viewed by listing the properties of a mail message as follows:

```
Received: by mail.kersur.net (mbox peterk)
          (with Cubic Circle's cucipop (v1.31 1998/05/13) Fri Mar 19 20:59:00 1999)
X-From_: aestes@e-dialog.com Fri Mar 19 13:43:54 1999
Return-Path: <aestes@e-dialog.com>
Received: from montana.e-dialog.com (mail.e-dialog.com [207.31.244.2])
          by mail.kersur.net (8.9.1/8.9.1) with ESMTP id NAA10659
          for <peterk@sytech.com>; Fri, 19 Mar 1999 13:43:53 -0500 (EST)
Received: by MONTANA with Internet Mail Service (5.5.2448.0)
          id <GZZPKKZ2>; Fri, 19 Mar 1999 13:43:57 -0500
Message-ID: <B15DC0490C8AD211BDFD004005A0C2CC47F10B@MONTANA>
From: Anthony Estes <aestes@e-dialog.com>
To: "'peterk@sytech.com'" <peterk@sytech.com>
Subject: FW: Warning: could not send message for past 4 hours
Date: Fri, 19 Mar 1999 13:43:54 -0500
MIME-Version: 1.0
X-Mailer: Internet Mail Service (5.5.2448.0)
Content-Type: multipart/mixed;
              boundary="----=_NextPart_000_01BE7238.71C0EB9A"
```

This message is in MIME format. Since your mail reader does not understand this format, some or all of this message may not be legible.

```
----=_NextPart_000_01BE7238.71C0EB9A
Content-Type: text/plain;
              charset="iso-8859-1"

----=_NextPart_000_01BE7238.71C0EB9A
Content-Type: application/octet-stream;
              name="ATT00547.TXT"
Content-Disposition: attachment;
              filename="ATT00547.TXT"
```

```
-----=_NextPart_000_01BE7238.71C0EB9A
Content-Type: message/rfc822

Message-ID: <B15DC0490C8AD211BDFD004005A0C2CC47EFF2@MONTANA>
From: Anthony Estes <aestes@e-dialog.com>
To: "Hillary Gaeth (E-mail)" <HGaeth@engage.com>
Subject: * Thurs, Fri ?
Date: Tue, 9 Mar 1999 08:04:20 -0500
MIME-Version: 1.0
X-Mailer: Internet Mail Service (5.5.2448.0)
Content-Type: text/plain

-----=_NextPart_000_01BE7238.71C0EB9A--
```

A header starts with a *field name* followed by a colon and the field body. The contents of the field body may be rigidly defined or free form.

The following headers are mandatory; that is, there must be a header with each of these names:

- Date
- From, or Sender and From
- To, or CC (carbon copy), BCC (blind carbon copy)

The following headers are optional:

- Return-path
- Received
- Reply-To
- Message-ID
- In-Reply-To
- References
- Keywords
- Subject
- Comments
- Encrypted

Some of these headers are obscure and rarely used. In addition, some mail clients generate their own extra headers. Many such extra header start with the characters "X-" because if extra mail headers are added to the RFC they will never start with these characters.

A header may be split over two lines according to the following rules:

- The split must be at a place where whitespace(blank or tabs) would normally occur; for example, not in the middle of a username or similar field.
- The continuation line must start with a space or tab.

Similary, a header can have extra white spaces almost everywhere except in the middle of a field.

Two headers that are given special attention in the context of this document are those that contain the address and subject.

## b) Address

The address is a header that contains the email address of the person receiving the message.

### c) Subject

This is a header that describes the subject of the mail. Contained in the subject is a **Subject Token** in the form of two characters. For example, for the mail subject '\*\* A Special Offer for Selected Managers', the **Subject Token** is \*\*

The **Subject Token** is chosen to identify the **Test ID** of the mail message.

### d) Salutation

The salutation is a text block in the outbound mail message that is personalized to the person receiving the message. The intention is to provide a personalized greeting and an indication of the sender.

From: Harvard Business School Publishing <hbsp@e-care.com>  
To: 'esalas@protelsa.com.pe'  
Subject: \*\* A Special Offer for Selected Manager  
Date: Tuesday, July 14, 1998 6:47 PM

From the Desk of Laura Winig  
Harvard Business School Publishing Corporation  
Boston, Massachusetts

Tuesday, July 14, 1998

*Ms. Elizabeth Salas*  
5700 Collins Avenue Apt 6h  
Miami Beach, FL 33140-2308

Dear *Ms. Salas*:

The information in italic is personalized and is combined with the remainder of the message at the time of dispatch.

### e) Body

The body contains the main core of the message. The format and layout is fixed and not personalized for a particular test.

Simply type "YES" in your reply to this e-mail to take "Virtual Work: Real Results" for a No-Obligation Test Drive!

-----

Do you work with colleagues and clients in multiple locations? Communicate more by email and conference calls than through meetings? Find your "office" is wherever you are at any given moment? Then you're working "virtually" and you know that working effectively without proximity is essential in today's workplace. And you know it's not as easy as it looks.

Here at the publishing arm of Harvard Business School, we've combined extensive research and real-life examples to create "Virtual Work: Real Results"-a dynamic multimedia program that can improve your effectiveness working "virtually."

-----

Use this engaging tool and you'll understand:

- \* the dynamics and politics of working virtually-and how to handle tough situations when you can't be face-to-face;
- \* how to most effectively use email, video conferencing, voice conferencing-and how to overcome fear of technology;
- \* ways to build relationships and trust without "human touch"-

and how a virtual team can work efficiently and seamlessly.

-----  
We bring you tricks of the trade from the experts in working virtually.

Then, you gain confidence using these techniques through an interactive case study where you lead a virtual team through a project. You'll make decisions that determine the success of its efforts-all in a realistic, but no-risk, environment.

Overcome the isolation and conflicting loyalties that are inherent in working in a virtual environment-and get ready for success with "Virtual Work: Real Results."

-----  
Take "Virtual Work: Real Results" for a No-Obligation Test Drive.

-----  
Simply reply to this email and we'll send you the program with our compliments. We're confident you'll find you're working more effectively in the virtual world. After 14 days, we'll send you an invoice for just \$295 (single user license).

But remember, if you're not entirely pleased with the program, simply call us and we'll arrange to pick it up. You will owe nothing.

Sincerely,

Laura Winig  
Director

In the above example the response with a "YES" is sufficient to indicate the purchase of the single product on offer. In a multi-product offer, the items would be listed and associated with a letter. For this type of mailing, the responder would list the letters in the response.

A mailing may have a follow up 'reminder' flight. This reminder would not go to respondents of the original flight. For example:

On Wednesday, July 1, I sent you a special offer on "Virtual Work: Real Results": a new interactive CD-ROM from Harvard Business School Publishing.

Since I haven't heard back from you, I wanted to send you a reminder Before the offer expires.

If you are simply not interested, I apologize for the intrusion.

----- BELOW IS A REPRINT OF THIS SPECIAL OFFER -----  
Simply type "YES" in your reply to this e-mail to take "Virtual Work: Real Results" for a No-Obligation Test Drive!

-----  
Do you work with colleagues and clients in multiple locations? Communicate more by email and conference calls than through meetings? Find your "office" is wherever you are at any given moment? Then you're working "virtually" and you know that working

...

...

...

confident you'll find you're working more effectively in the virtual world. After 14 days, we'll send you an invoice for just \$295 (single user license).

But remember, if you're not entirely pleased with the program, simply call us and we'll arrange to pick it up. You will owe nothing.

Sincerely,

Laura Winig  
Director

## f) Personal

The personal is added to the outbound message, after the mail body. The purpose of the text block is to request personal details from the respondent. The information requested is presented

in two columns, the first indicating the type of information required and the second as a place for the reply to be entered (in [...]). For example,

FIRST NAME:	[ ]
LAST NAME:	[ ]
TITLE:	[ ]
COMPANY:	[ ]
DEPARTMENT:	[ ]
ADDRESS1:	[ ]
ADDRESS2:	[ ]
ADDRESS3:	[ ]
CITY:	[ ]
PROVINCE/STATE:	[ ]
POSTAL/ZIP CODE	[ ]
COUNTRY:	[ ]
PHONE:	[ ]
FAX:	[ ]
EMAIL:	[ ]

These details are to determine the shipping and billing information.

#### e) Token

The token follows the Mail Body (or Mail Personal if applicable) and contains information about the mailing and also the addressee e.g., [[878119|2815|1]]

The format of a Mail Token is

**[[MID | TID | SID]]**

where

- MID is an membership ID assigned to the person receiving the outbound message
- TID is the test ID assigned to the outbound message. This would be related to the Subject Token.
- SID is the style ID assigned to the style of the mailing i.e., single product or multi-product.

These three pieces of information uniquely identify the receiver of the outbound message and also the information they received. Hence, the processing of a response is greatly simplified if the reply returns the mail token.

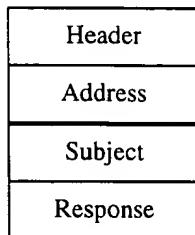
In summary, an outbound message contains generic information that is the same in all the mailings of a test, and also personalized:

<u>Generic</u>	<u>Personalized</u>
Subject	Header
Body	Address Salutation Personal Token

## **THE ANATOMY OF AN INBOUND E-MAIL MESSAGE**

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An inbound email message has a predefined structure. However, the structure may not be ‘structured’ sufficiently for it to be automatically processed.



### **a) Headers**

The first few lines of an Inbound Mail message are Headers and have a defined format. This information is similar in format to that of the outbound message. If the response is produced by replying to an outbound message, (instead of creating it from scratch) then it is probable that the headers of the outbound will be in the inbound mail.

### **b) Address**

The address is a header that contains the email address of the respondent.

### **c) Subject**

This is a header that describes the subject of the mail. This is free-form text and no assumptions can be on its structure. It may be the subject that was used in the outbound mail.

### **d) Response**

The response is a text block containing the message from the respondent. It should not be assumed that the response has any structure since a responder has the freedom to write a reply in “free format” and is not forced to a guideline. This creates a number of problems for the processing of an inbound response since rigid rules cannot be applied.

The points that can be noted about a response are that:

- All responses will contain headers.
- All responses will contain the responders email address.
- All responses will contain a subject. The textual content of the subject cannot be assumed since it can be freely edited and so may not resemble the content of the outbound. If a subject contains a Subject Token then it should correspond to the TID.
- If the response contains the Mail Token then the MID, TID and SID will be available and consequently it will be clear on the approach that should be taken in processing the response i.e., the handling of a single product ‘YES’ versus a multi-product ‘ADG’.

## **AN E-MAIL LIFE CYCLE**

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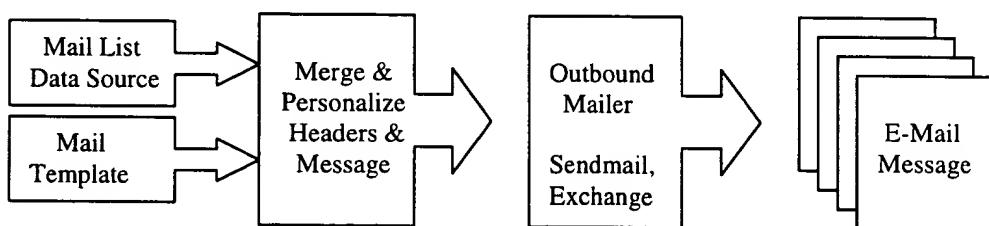
### **OUTBOUND**

#### **a) Create an outbound message**

An outbound email message consists of texts block that contains information and one or many questions or choices. The text block of an outbound mail message is sometimes referred to as a **Mail Template**.

#### **b) Deploy the outbound message**

The message can be deployed to anyone for whom an e-mail address is available. The address information in a **Mail List** (e.g., database, listserve) is merged with the **Mail Template** and sent. In some cases, the X-Headers are also personalized to reflect the purpose of the outbound mail message.



### **INBOUND**

#### **a) Receive a Reply**

The content of a reply can have various forms

- The reply responds to the outbound message e.g., an order.
- The reply requests to unsubscribe from future mailings. The reply contains an indication that the respondent does not wish to receive any further mailings e.g., UNSUB, UNSUBSCRIBE, UNJOIN and REMOVE.
- The reply requests customer service and ad hoc questions.
- The reply indicates a change in personal details or to be added to the mailing list.

There is also the possibility that the outbound message did not reach its final destination and that it bounced back. There are two categories of bounces, hard bounces and soft bounces.

- A hard bounce notification indicates outright failure. For a hard bounce, the subject would contain a message of the following form:

Returned mail: Host unknown (Name server: ssoofftteeccchh.com: host not found)

The sender of a hard bounce is usually specific such as:  
Mail Delivery System [MAILER-DAEMON]

A hard bounce can also be detected in the response X-Header:

```
Received: by mail.kersur.net (mbox peterk)
  (with Cubic Circle's cucipop (v1.31 1998/05/13) Fri Mar 19 21:04:39 1999)
X-From: MAILER-DAEMON Fri Mar 19 21:04:36 1999
Return-Path: <MAILER-DAEMON>
Received: from localhost (localhost)
  by mail.kersur.net (8.9.1/8.9.1) with internal id VAA20320;
  Fri, 19 Mar 1999 21:04:36 -0500 (EST)
Date: Fri, 19 Mar 1999 21:04:36 -0500 (EST)
From: Mail Delivery Subsystem <MAILER-DAEMON>
Message-Id: <199903210204.VAA20320@mail.kersur.net>
To: <peterk@sytech.com>
MIME-Version: 1.0
Content-Type: multipart/report; report-type=delivery-status;
  boundary="VAA20320.921981876/mail.kersur.net"
Subject: Returned mail: Host unknown (Name server: ssooftteecchh.com: host not found)
Auto-Submitted: auto-generated (failure)
```

The response body can also contain failure information:

The original message was received at Fri, 19 Mar 1999 21:04:35 -0500 (EST)  
from dialup11.kersur.net [207.180.95.76]

----- The following addresses had permanent fatal errors -----
<JohnSmith@SSOFTTEECCHH.com>

----- Transcript of session follows -----
550 <JohnSmith@SSOFTTEECCHH.com>... Host unknown (Name server: ssooftteecchh.com: host not found)

- Softbounces can be of three types:

- ° *NonDeliveryNotification* occurs when a given message has not been delivered yet but will continue to try and deliver for a further specified period of time. This state can be detected in the response subject:

FW: Warning: could not send message for past 4 hours

The response can also be detected in the response body:

```
*****
**      THIS IS A WARNING MESSAGE ONLY      **
**  YOU DO NOT NEED TO RESEND YOUR MESSAGE  **
*****
```

The original message was received at Tue, 9 Mar 1999 08:00:18 -0500 (EST)  
from mail.e-dialog.com [207.31.244.2]

----- The following addresses had transient non-fatal errors -----
hgaeth@andexc01.cmgi.com
(expanded from: <HGaeth@engage.com>)

----- Transcript of session follows -----
hgaeth@andexc01.cmgi.com... Deferred: Connection refused by
andexc01.cmgi.com.
Warning: message still undelivered after 4 hours
Will keep trying until message is 3 days old

- ° *AutoResponders* are notifications which actually indicate delivery but are sent by mail agents to indicate that the user will not be able to respond immediately (possibly on vacation) but the sender should expect a response when they return.
  - ° *Unknown*

### b) Process the reply

Automatic processing of an e-mail response is defined as the ability to determine accurately the requirements of the reply by using text inspection and search rules.

To automatically process an e-mail response, there are a number of criteria that need to be satisfied by the content of the reply. The main three criteria are:

- ci) Who is the Respondent
- cii) What outbound message is the response to
- ciii) What does the Respondent require

The exception to the above are hard and soft bounces that are identified by other e-mail properties.

Since all legitimate mail responses will contain the e-mail address of the Sender this can be regarded as a base information for all responses. This information fulfills criteria ci) but alone is not sufficient for a response to be processed automatically.

Criteria cii) can be satisfied by the Subject Token, provided the respondent has not altered it. Note that the Style ID is implied if criteria cii) is satisfied.

Another source of information is the Mail Token. For a reply that contains a Mail Token, both criteria ci) and cii) can be determined.

But how is criteria ciii) satisfied? There is no simple solution to this question since the answer lies in the body of the reply, which is in 'free form'. The only method available that can determine the requirements of the respondent is to parse the email reply based on the SID.

### c) Produce Reports

After determining the requirement of the inbound e-mail, database entries and reports can be produced.

